Chemical Safety Data Sheet MSDS / SDS

2-methylpentane SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: 2-methylpentane

CAS: 107-83-5

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Flammable liquids, Category 2
Skin irritation, Category 2

Aspiration hazard, Category 1
Specific target organ toxicity – single exposure, Category 3
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour
H315 Causes skin irritation
H304 May be fatal if swallowed and enters airways
H336 May cause drowsiness or dizziness
H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P264 Wash ... thoroughly after handling.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P370+P378 In case of fire: Use ... to extinguish.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P321 Specific treatment (see ... on this label).
P332+P317 If skin irritation occurs: Get medical help.

P362+P364 Take off contaminated clothing and wash it before reuse.
P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P331 Do NOT induce vomiting.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P319 Get medical help if you feel unwell.
P391 Collect spillage.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	2-methylpentane
Common names and synonyms:	2-methylpentane
CAS number:	107-83-5
EC number:	203-523-4
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth.

Most important symptoms/effects, acute and delayed

Inhalation causes irritation of respiratory tract, cough, mild depression, cardiac arrhythmias. Aspiration causes severe lung irritation, coughing, pulmonary edema; excitement followed by depression. Ingestion causes nausea, vomiting, swelling of abdomen, headache, depression. (USCG, 1999)
Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: Inhalation or contact with material may irritate or burn skin and eyes. Fire may produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aliphatic hydrocarbons and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Wear self contained breathing apparatus for fire fighting if necessary.

Specific hazards arising from the chemical

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are

heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. Substance may be transported hot. For hybrid vehicles, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. If molten aluminum is involved, refer to ERG Guide 169. (ERG, 2016)
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Special protective actions for fire-fighters

Use alcohol-resistant foam, powder, carbon dioxide, water. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: filter respirator for organic gases and vapours of low boiling point adapted to the airborne concentration of the substance. Remove all ignition sources. Ventilation. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable non-plastic containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Wash away remainder with plenty of water. Then store and dispose of according to local regulations.

Environmental precautions

Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

Methods and materials for containment and cleaning up

Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants.Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 500 ppm as TWA; 1000 ppm as STEL.MAK: 1800 mg/m3, 500 ppm; peak limitation category: II(2); pregnancy risk group: D

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Watery liquid with a gasoline-like odor, Floats on water. Produces an irritating vapor. (USCG, 1999)
Colour:	Colorless liquid
Odour:	no data available
Melting point/freezing point:	10°C(lit.)
Boiling point or initial boiling point and boiling range:	60°C
Flammability:	Highly flammable.
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 1.2% by volume; Upper flammable limit: 7.0% by volume.
Flash point:	-20°C(lit.)
Auto-ignition temperature:	585° F (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	In water, 14 mg/L
Partition coefficient n-octanol/water:	log Kow = 3.21 (est)

Vapour pressure:	6.77 psi (37.7 °C)
Density and/or relative density:	0.65
Relative vapour density:	3 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Reacts violently with oxidants. This generates fire and explosion hazard. Attacks plastics.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.Saturated aliphatic hydrocarbons, such as ISOHEXENE, may be incompatible with strong oxidizing agents like nitric acid. Charring of the hydrocarbon may occur followed by ignition of unreacted hydrocarbon and other nearby combustibles. In other settings, aliphatic saturated hydrocarbons are mostly unreactive. They are not affected by aqueous solutions of acids, alkalis, most oxidizing agents, and most reducing agents.

Conditions to avoid

no data available

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. -Carbon oxides

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance and the vapour are mildly irritating to the eyes, respiratory tract and skin. If swallowed the substance easily enters the airways and could result in aspiration pneumonitis. The substance may cause effects on the central nervous system. This may result in lowering of consciousness.

STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking. Repeated or prolonged contact with skin may cause dermatitis.

Aspiration hazard

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Indigenous soil microbes will biodegrade petroleum hydrocarbons under aerobic conditions(1). A quarter of the microorganisms isolated from gasoline-contaminated groundwater, most notably of the Nocardia sp., supported growth of 2-methylpentane(2). Generally iso-alkanes are significantly more resistant to microbial attack than n-alkanes(3). However, a soil microorganism, Corynebacterium sp. oxidized 2-methylpentane, at about the same rate as n-pentane, although at a significantly lower rate than n-hexane(3). A mean half-life of 5.9 days was reported for all detectable hydrocarbons in an aerobic biodegradation study of gasoline in water from a domestic sewage treatment plant(4). The biodegradation half-lives of the C6-saturates compound group (n-hexane, 2-methylpentane, 3-methylpentane, methylcylcopentane and cyclohexane), determined from biodegradation tests with water accommodated fractions(WAF) of Statjofrd fresh oil, Aquila fresh oil, and Marine diesel in seawater at 13 deg C, were 2.8, 1.7, and 3.5 days respectively (without correction for lag phase) (5). The mean half-life from results for all three oils was determined to be 2.7 days for the C6-saturates group(5). 2-Methylpentane, and 10 other components of gasoline were completely degraded in a screening study using an activated sludge inoculum in less than 34 days(6). A mixture containing isopentane, pentane, cyclopentane, 2,3-dimethylbutane, 2-methylpentane, 3-methylpentane, and cyclohexane, showed little degradation over the course of 30 days in a sediment/groundwater obtained from a contaminated jet fuel site in Oscoda, MI(7). 2-Methylpentane, present at 100 mg/L, reached 93% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in a screening test assessing biodegradation in water(8). Therefore, 2-methylpentane is confirmed to be readily biodegradable according to the standard test of the Japanese Ministry of Industry and Trade (MITI) (8).

Bioaccumulative potential

An estimated BCF of 61 was calculated in fish for 2-methylpentane(SRC), using an estimated log Kow of 3.21(1) and a regression-

derived equation(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is moderate(SRC).

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of 2-methylpentane can be estimated to be 610(SRC). According to a classification scheme(2), this estimated Koc value suggests that 2-methylpentane is expected to have low mobility in soil. A sorption experiment using lignite samples resulted in a log Kd of 2.92 for 2-methylpentane(3).

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1208 (For reference only, please check.)
IMDG: UN1208 (For reference only, please check.)
IATA: UN1208 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: HEXANES (For reference only, please check.)
IMDG: HEXANES (For reference only, please check.)

IATA: HEXANES (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)
IMDG: 3 (For reference only, please check.)
IATA: 3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)
IMDG: II (For reference only, please check.)
IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/